

AIMS AND SCOPE

Although total synthesis reached extraordinary levels of sophistication in the last century, the development of practical and efficient synthetic methodologies is still in its infancy. Achieving chemical reactions that are highly selective, economical, safe, resource- and energy-efficient, and environmentally benign is a primary challenge to chemistry in this century. Realizing this goal will demand the highest level of scientific creativity, insight and understanding in a combined effort by academic, government and industrial chemists and engineers.

Advanced Synthesis & Catalysis promotes that process by publishing high-impact research results reporting the development and application of efficient synthetic methodologies and strategies for organic targets that range from pharmaceuticals to organic materials. Homogeneous catalysis, biocatalysis, organocatalysis and heterogeneous catalysis directed towards organic synthesis are playing an ever increasing role in achieving synthetic efficiency. Asymmetric catalysis remains a topic of central importance. In addition, *Advanced Synthesis & Catalysis* includes other areas that are making a contribution to green synthesis, such as synthesis design, reaction techniques, flow chemistry and continuous processing, multi-phase catalysis, green solvents, catalyst immobilization and recycling, separation science and process development.

Practical processes involve development of effective integrated strategies, from an elegant synthetic route based on mechanistic and structural insights at the molecular level through to process optimization at larger scales. These endeavors often entail a multidisciplinary approach that spans the broad fields chemistry, biology, and engineering and involve contributions from academic, government, and industrial laboratories.

The unique focus of *Advanced Synthesis & Catalysis* has rapidly made it a leading organic chemistry and catalysis journal. The goal of *Advanced Synthesis & Catalysis* is to help inspire a new era of chemical science, based on the efforts of synthetic chemists and on interdisciplinary collaboration, so that chemistry will make an even greater contribution to the quality of life than it does now.

Advanced Synthesis & Catalysis

succeeding *Journal für praktische
Chemie*

(founded in 1828)

ASC

2-Year Impact Factor 2008

5.619

A Record High
for Organic Chemistry

2009, 351, 17, Pages 2733–3012

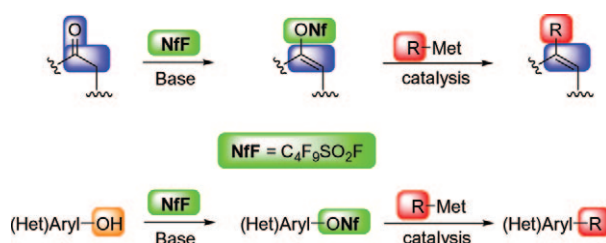
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REVIEWS

Nine Times Fluoride can be Good for your Syntheses. Not just Cheaper: Nonfluorobutanesulfonates as Intermediates for Transition Metal-Catalyzed Reactions

Adv. Synth. Catal. **2009**, 351, 2747–2763

Jens Högermeier, Hans-Ulrich Reissig*




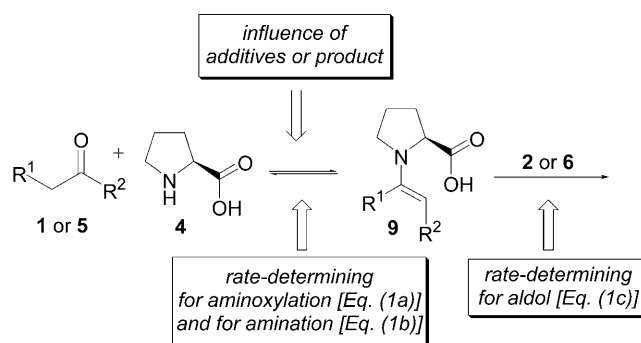
2747

COMMUNICATIONS

- 2765** A Coherent Mechanistic Rationale for Additive Effects and Autoinductive Behaviour in Proline-Mediated Reactions


Adv. Synth. Catal. **2009**, 351, 2765–2769

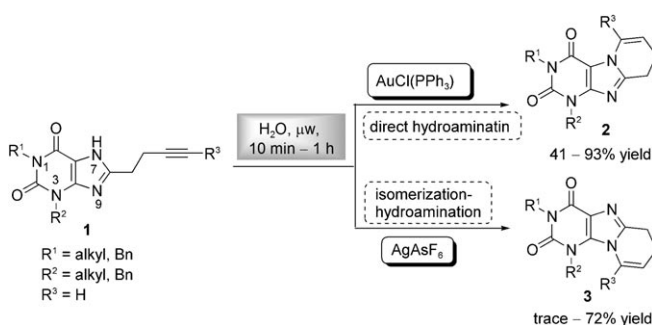
 Natalia Zotova, Antonio Moran, Alan Armstrong,*
Donna G. Blackmond*



- 2770** Gold- and Silver-Catalyzed Intramolecular Hydroamination of Terminal Alkynes: Water-Triggered Chemo- and Regioselective Synthesis of Fused Tricyclic Xanthenes


Adv. Synth. Catal. **2009**, 351, 2770–2778

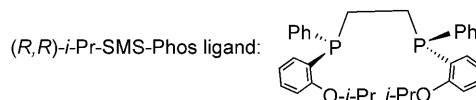
 Deju Ye, Xu Zhang, Yu Zhou, Dengyou Zhang, Lei Zhang,
Hengshuai Wang, Hualiang Jiang, Hong Liu*



- 2779** DiPAMPs Big Brother “*i*-Pr-SMS-Phos” Exhibits Exceptional Features Enhancing Rhodium(I)-Catalyzed Hydrogenation of Olefins

Adv. Synth. Catal. **2009**, 351, 2779–2786

 Michel Stephan,* Damjan Šterk, Barbara Mohar

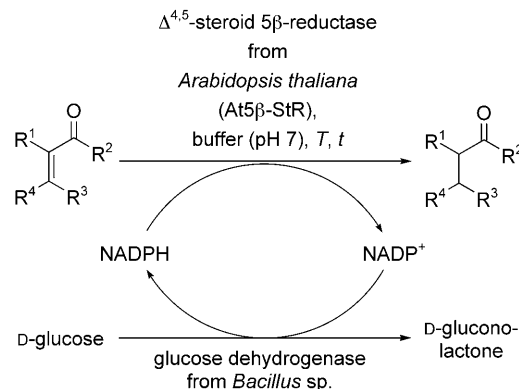


i-Pr-SMS-Phos ligand displayed a boosted catalyst activity and enantioselectivity in the rhodium(I)-catalyzed hydrogenation of a wide-range of dehydro- α -amido acids, itaconates, acrylates, enamides, enol acetates and α,α -diarylethylenes.

- 2787** Recombinant $\Delta^{4,5}$ -Steroid 5 β -Reductases as Biocatalysts for the Reduction of Activated C=C-Double Bonds in Monocyclic and Acyclic Molecules


Adv. Synth. Catal. **2009**, 351, 2787–2790

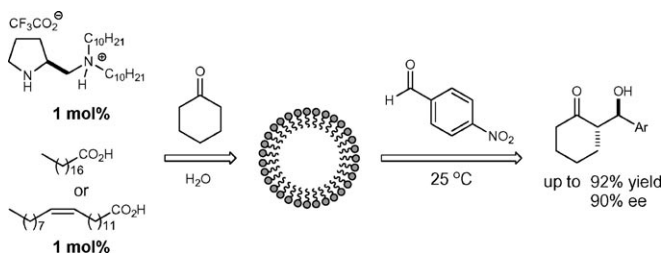
Edyta Burda, Marina Krauß, Gabriele Fischer,
Werner Hummel, Frieder Müller-Uri, Wolfgang Kreis,*
Harald Gröger*



- 2791** Effect of Long Chain Fatty Acids on Organocatalytic Aqueous Direct Aldol Reactions

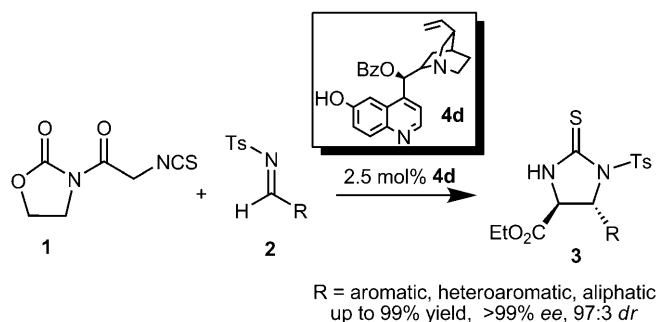
Adv. Synth. Catal. **2009**, 351, 2791–2796

 Nobuyuki Mase,* Naoyasu Noshiro, Asuka Mokuya,
Kunihiko Takabe



Organocatalytic Asymmetric Synthesis of Protected α,β -Diamino Acids*Adv. Synth. Catal.* **2009**, 351, 2797–2800

Zugui Shi, Peiyuan Yu, Pei Juan Chua, Guofu Zhong*

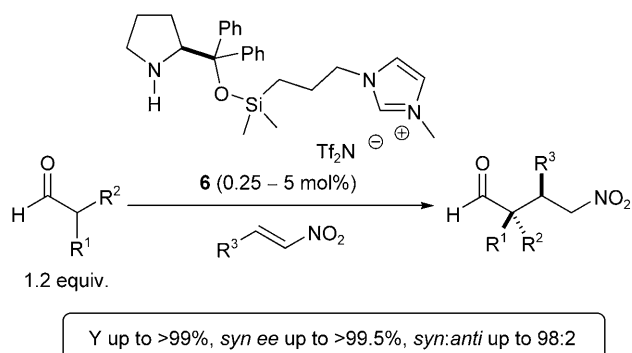


2797

Highly Efficient Ion-Tagged Catalyst for the Enantioselective Michael Addition of Aldehydes to Nitroalkenes

Adv. Synth. Catal. **2009**, 351, 2801–2806

Marco Lombardo,* Michel Chiarucci, Arianna Quintavalla, Claudio Trombini

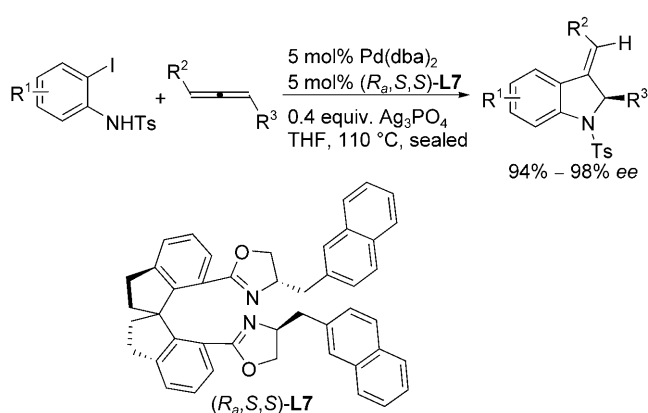


2801

Development of a New Spiro-BOX Ligand and Its Application in Highly Enantioselective Palladium-Catalyzed Cyclization of 2-Iodoanilines with Allenes

Adv. Synth. Catal. **2009**, 351, 2807–2810

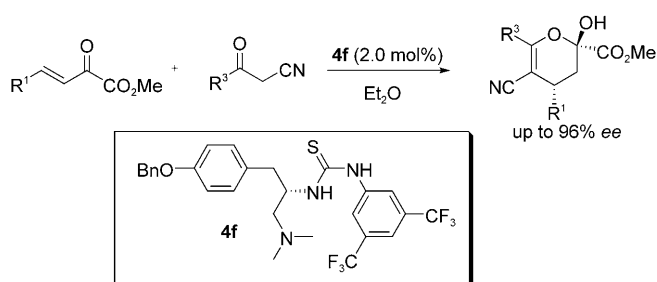
Wei Shu, Qiong Yu, Shengming Ma*



2807

Highly Enantioselective Michael Addition of α -Substituted Cyano Ketones to β,γ -Unsaturated α -Keto Esters using Bifunctional Thiourea-Tertiary Amine Catalysts: An Easy Access to Chiral Dihydropyrans*Adv. Synth. Catal.* **2009**, 351, 2811–2816


Sheng-Li Zhao, Chang-Wu Zheng, Hai-Feng Wang, Gang Zhao*

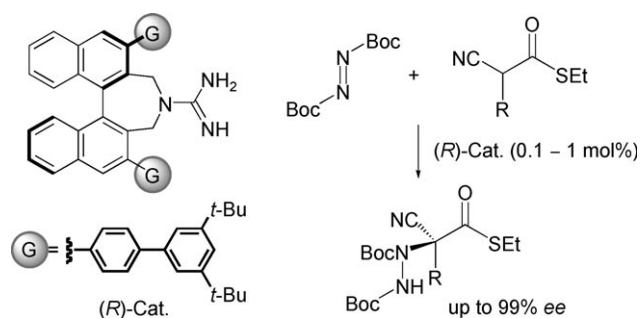


2811

- 2817** Enantioselective Electrophilic Amination of α -Cyanothioacetates with Azodicarboxylates Catalyzed by an Axially Chiral Guanidine Base


Adv. Synth. Catal. **2009**, 351, 2817–2821

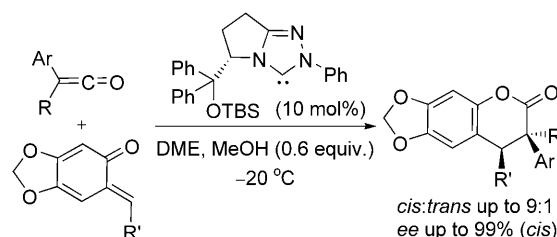
 Masahiro Terada,* Daisuke Tsushima, Megumi Nakano



- 2822** Enantioselective Synthesis of Dihydrocoumarins *via* N-Heterocyclic Carbene-Catalyzed Cycloaddition of Ketenes and *o*-Quinone Methides

Adv. Synth. Catal. **2009**, 351, 2822–2826

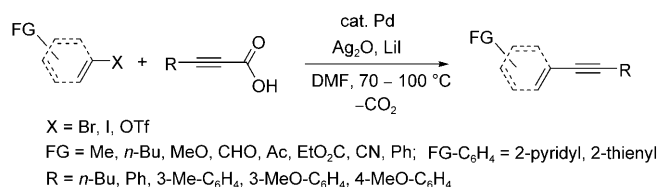
 Hui Lv, Lin You, Song Ye*



- 2827** Palladium-Catalyzed Decarboxylative *sp*-*sp*² Cross-Coupling Reactions of Aryl and Vinyl Halides and Triflates with α,β -Ynoic Acids using Silver Oxide


Adv. Synth. Catal. **2009**, 351, 2827–2832

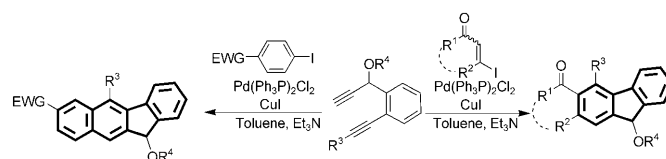
 Hyunseok Kim, Phil Ho Lee*



- 2833** Facile Synthesis of Polycyclic Fluorene Derivatives *via* a Palladium-Catalyzed Coupling, Propargyl-Allenyl Isomerization and Schmitt Cyclization Sequence


Adv. Synth. Catal. **2009**, 351, 2833–2838

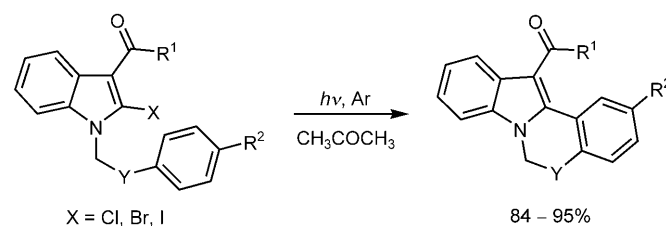
 Ruwei Shen, Linzhu Chen, Xian Huang*



- 2839** Intramolecular Photochemical Cross-Coupling Reactions of 3-Acyl-2-haloindoles and 2-Chloropyrrole-3-carbaldehydes with Substituted Benzenes


Adv. Synth. Catal. **2009**, 351, 2839–2844

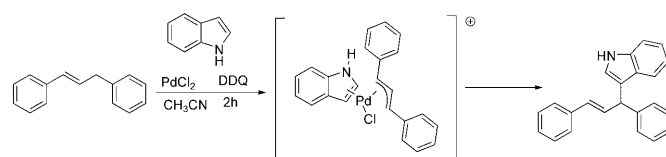
 Shen-Ci Lu, Xi-Xia Zhang, Zong-Jun Shi, Yu-Wei Ren, Bing Li, Wei Zhang*



- 2845** Efficient Palladium-Catalyzed Oxidative Indolation of Allylic Compounds with DDQ *via* *sp*³ C–H Bond Activation and Carbon–Carbon Bond Formation Under Mild Conditions

Adv. Synth. Catal. **2009**, 351, 2845–2849

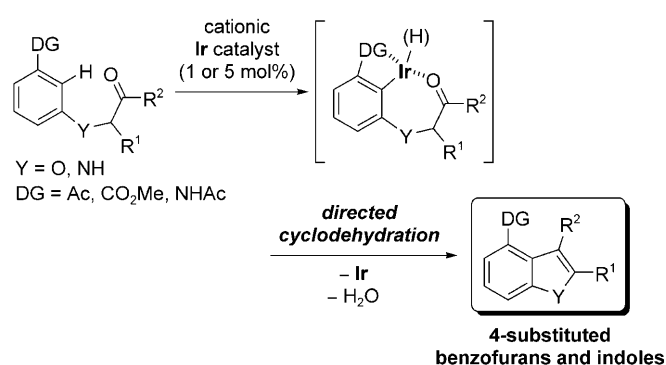
 Hanjie Mo, Weiliang Bao*



Iridium-Catalyzed Selective Synthesis of 4-Substituted Benzofurans and Indoles *via* Directed Cyclodehydration

Adv. Synth. Catal. **2009**, 351, 2850–2854

Kyoji Tsuchikama, Yu-ki Hashimoto, Kohei Endo, Takanori Shibata*



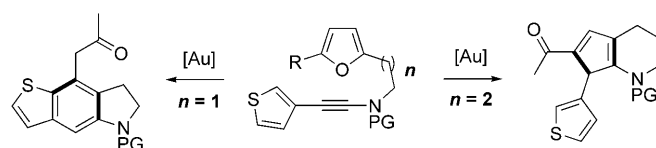
2850

FULL PAPERS

Gold Catalysis: Anellated Heterocycles and Dependency of the Reaction Pathway on the Tether Length

Adv. Synth. Catal. **2009**, 351, 2855–2875

A. Stephen K. Hashmi,* Sreekumar Pankajakshan, Matthias Rudolph, Elisabeth Enns, Thomas Bander, Frank Rominger, Wolfgang Frey

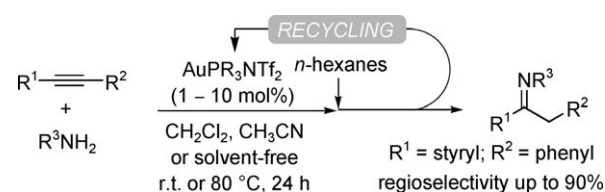


2855

Reusable Gold(I) Catalysts with Unique Regioselectivity for Intermolecular Hydroamination of Alkynes

Adv. Synth. Catal. **2009**, 351, 2876–2886

Antonio Leyva, Avelino Corma*

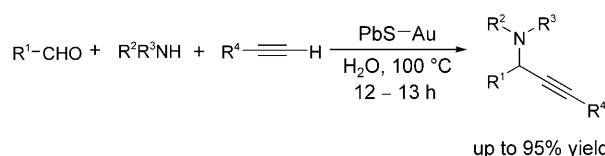


2876

Semiconductor-Gold Nanocomposite Catalysts for the Efficient Three-Component Coupling of Aldehyde, Amine and Alkyne in Water

Adv. Synth. Catal. **2009**, 351, 2887–2896

Leng Leng Chng, Jun Yang, Yifeng Wei, Jackie Y. Ying*

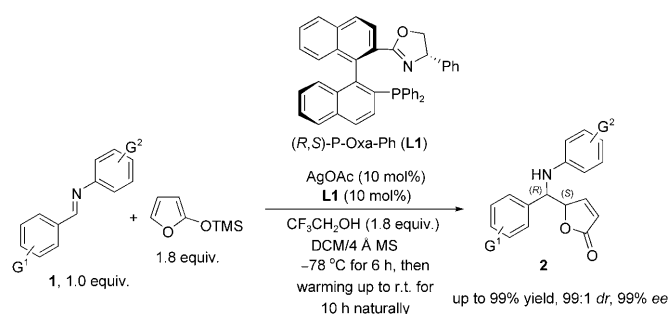


2887

Axially Chiral Phosphine-Oxazoline Ligands in Silver(I)-Catalyzed Asymmetric Mannich Reaction of Aldimines with Trimethylsiloxyfuran

Adv. Synth. Catal. **2009**, 351, 2897–2902

Hong-Ping Deng, Yin Wei, Min Shi*

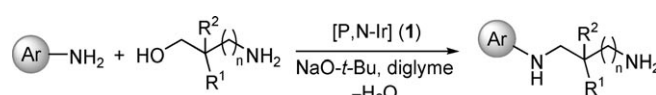


2897

Synthesis of Selectively Mono-N-Arylated Aliphatic Diamines *via* Iridium-Catalyzed Amine Alkylation

Adv. Synth. Catal. **2009**, 351, 2903–2911


Benoît Blank, Stefan Michlik, Rhett Kempe*

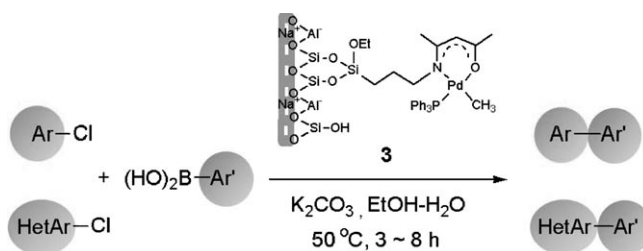


2903

- 2912** Expanded Heterogeneous Suzuki–Miyaura Coupling Reactions of Aryl and Heteroaryl Chlorides under Mild Conditions

Adv. Synth. Catal. **2009**, 351, 2912–2920

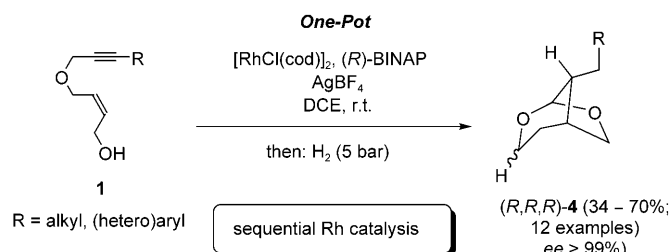
 Dong-Hwan Lee, Minkee Choi, Byung-Woo Yu, Ryong Ryoo,* Abu Taher, Shahin Hossain, Myung-Jong Jin*



- 2921** Novel Enantioselective Sequentially Rhodium(I)/BINAP-Catalyzed Cycloisomerization–Hydrogenation–Isomerization–Acetalization (CIHIA)

Adv. Synth. Catal. **2009**, 351, 2921–2935

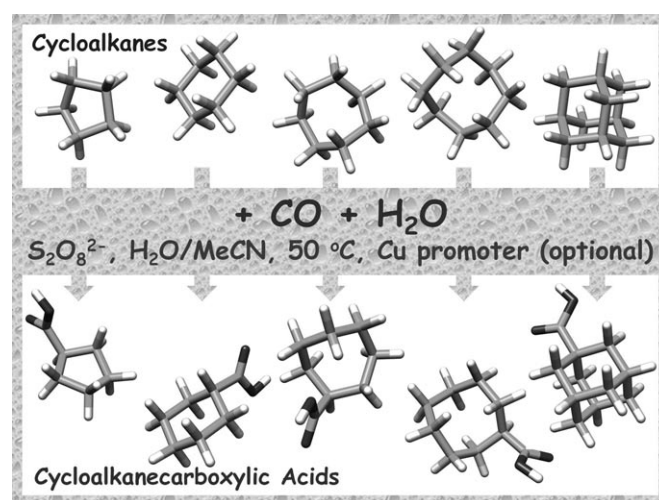
 Nadine Körber, Frank Rominger, Thomas J. J. Müller*



- 2936** Metal-Free and Copper-Promoted Single-Pot Hydrocarboxylation of Cycloalkanes to Carboxylic Acids in Aqueous Medium


Adv. Synth. Catal. **2009**, 351, 2936–2948

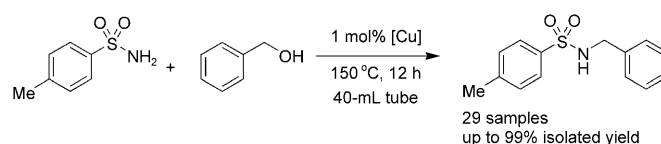
Marina V. Kirillova, Alexander M. Kirillov, Armando J. L. Pombeiro*



- 2949** Copper-Catalyzed *N*-Alkylation of Sulfonamides with Benzylic Alcohols: Catalysis and Mechanistic Studies


Adv. Synth. Catal. **2009**, 351, 2949–2958

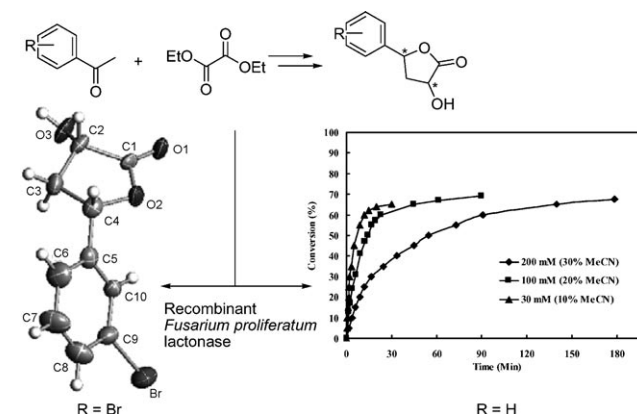
 Xinjiang Cui, Feng Shi,* Man Kin Tse, Dirk Gördes, Kerstin Thurow, Matthias Beller, Youquan Deng*



- 2959** Facile Synthesis of Enantiopure 4-Substituted 2-Hydroxy-4-butyrolactones using a Robust *Fusarium* Lactonase

Adv. Synth. Catal. **2009**, 351, 2959–2966

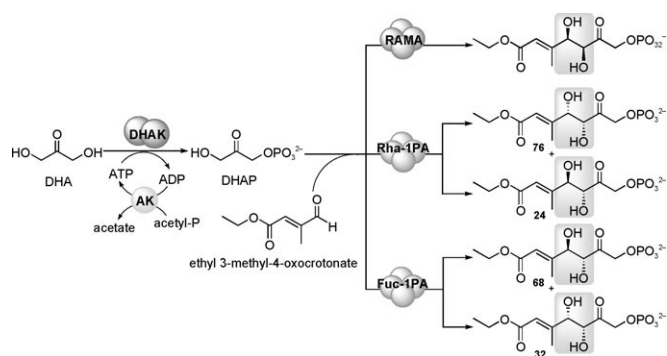
 Bing Chen, Hai-Feng Yin, Zhen-Sheng Wang, Jian-He Xu,* Li-Qiang Fan, Jian Zhao



Activated α,β -Unsaturated Aldehydes as Substrate of Dihydroxyacetone Phosphate (DHAP)-Dependent Aldolases in the Context of a Multienzyme System

Adv. Synth. Catal. **2009**, 351, 2967–2975

Israel Sánchez-Moreno, Laura Iturrate, Elisa G. Doyagüez, Juan Antonio Martínez, Alfonso Fernández-Mayoralas, Eduardo García-Junceda*

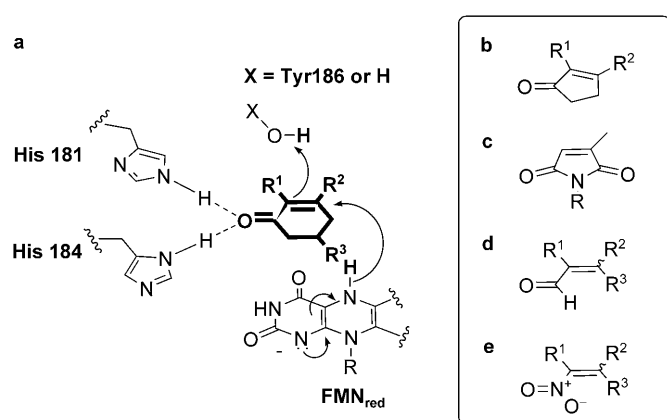


2967

Asymmetric Reduction of Activated Alkenes by Pentaerythritol Tetranitrate Reductase: Specificity and Control of Stereochemical Outcome by Reaction Optimisation

Adv. Synth. Catal. **2009**, 351, 2976–2990

Anna Fryszkowska, Helen Toogood, Michiyo Sakuma, John M. Gardiner, Gill M. Stephens,* Nigel S. Scrutton*

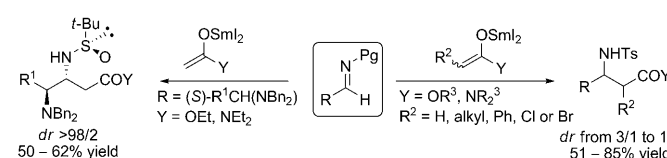


2976

The Addition Reaction of Samarium Enolates and 2-Haloenolates Derived from Esters, and Amides to Imines. Totally Stereoselective Synthesis of Enantiopure 3,4-Diamino Esters or Amides

Adv. Synth. Catal. **2009**, 351, 2991–3000

José M. Concellón,* Humberto Rodríguez-Solla, Carmen Simal, Vicente del Amo, Santiago García-Granda, M. Rosario Díaz

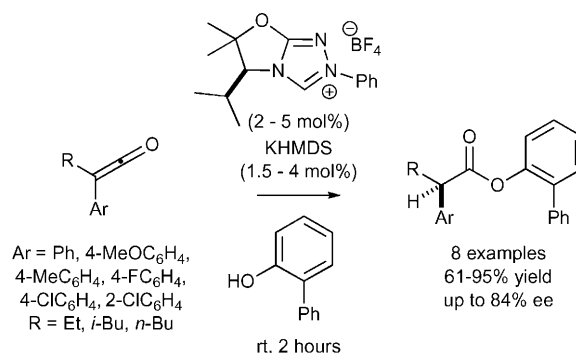


2991

N-Heterocyclic Carbene-Mediated Enantioselective Addition of Phenols to Unsymmetrical Alkylarylketenes

Adv. Synth. Catal. **2009**, 351, 3001–3009

Carmen Concellón, Nicolas Duguet, Andrew D. Smith*



3001

Supporting information on the WWW (see article for access details).

*Author to whom correspondence should be addressed.